

## ABSTRACT

A multiple electrode for measuring electro-physiological characteristics of a biological specimen  
5 includes a plurality of micro-electrode provided on a first region on a substrate, and a reference electrode provided in a second region on the substrate. The reference electrode includes at least one stimulus reference electrode for applying an electrical signal to the plurality of micro-electrodes. Preferably, the reference electrode includes at least one measurement reference electrode for detecting an electrical signal from the plurality of micro-electrodes, and the stimulus reference electrode is electrically insulated from the measurement reference  
10 electrode. Preferably, the second region is placed at a distance from an outer edge of the first region, and surrounds the first region.  
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